

Notice of Allowability

Application No.

10/750,575

Applicant(s)

HONG, HYUNG KI

Examiner

(Nancy) Thanh-Nhan P. Nguyen

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 7/23/2007.
2. ☒ The allowed claim(s) is/are 1-3, 6-9 and 12-14.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.


Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☒ Other Page 9 of the Specification.


David Nelms
Supervisory Patent Examiner
Technology Center 2800

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Siller on 11/6/2007.

Amendment to the Specification:

Please insert page 9 between page 8 and page 10.

Allowable Subject Matter

Claims 1-3, 6-9 and 12-14 are allowed.

Reasons for Allowance

Claims 1-3, 6-9 and 12-14 are allowed since there is no prior art of record that teaches or suggests a liquid crystal display module comprising a relationship of various elements as claimed with the specific allowable subject matter cited in the following claim:

Claim 1:

- a light guide panel through which the light from the light source propagates, the light guide panel having a first refractive index
- a low refractive index layer disposed on the light guide panel, the low refractive index layer having a second refractive index which is lower than the first refractive index

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- a transmissive liquid crystal display panel disposed on an upper portion of the lower refractive layer
- optical sheets disposed on the low refractive index layer
- a polarizer disposed on the optical sheets
- wherein the transmissive liquid crystal display panel includes an upper substrate facing the lower refractive index layer with liquid crystal therebetween, and no substrate disposed between the liquid crystal and the light guide panel

Claims 2,3, 6-9 and 12-14 are allowed since they depend on allowed claim 1.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Umemoto et al (US 2003/0043315) discloses a liquid crystal display device comprising a light guide plate used as a lower substrate; and a polarizer disposed under the light guide plate.

Kawakami (US 2003/0218701) discloses an electro optical device comprising a light guide plate used as a lower substrate; a lower refractive index layer formed on the light guide plate; and a polarizer formed opposite the lower refractive index layer respective to the light guide plate.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance".

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Contact Information


Any inquiry concerning this communication or earlier communications from the examiner should be directed to (Nancy) Thanh-Nhan P. Nguyen whose telephone number is 571-272-1673. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 571-272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

(Nancy) Thanh-Nhan P Nguyen
Examiner
Art Unit 2871

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David Nelms
Supervisory Patent Examiner
Technology Center 2800

[0034] The transmissive liquid crystal display panel may include a lower substrate disposed on the polarizer and an upper substrate facing the lower substrate with liquid crystal therebetween to selectively transmit the light through the liquid crystal by driving the liquid crystal or an upper substrate facing the polarizer with liquid crystal therebetween to selectively transmit the light through the liquid crystal by driving the liquid crystal and no substrate disposed between the liquid crystal and the light guide panel.

[0035] The liquid crystal display module may further comprise a light source housing reflecting the light generated by the light source towards the light guide plate and a condenser disposed between the light source and the light guide panel, the condenser condensing the light generated by the light source and the light reflected by the light source housing into a smaller range of angles emitted into the light guide panel.

[0036] The critical angle may be defined by: $90^\circ - \text{condensed degree by the condenser} > \sin^{-1}(a \text{ refractive index of the reflecting means} / a \text{ refractive index of the light guide panel})$.

BRIEF DESCRIPTION OF THE DRAWINGS

[0037] These and other advantages of the invention will be apparent from the following detailed description of the embodiments of the present invention with reference to the accompanying drawings, in which:

[0038] FIG. 1 is a perspective view representing a known liquid